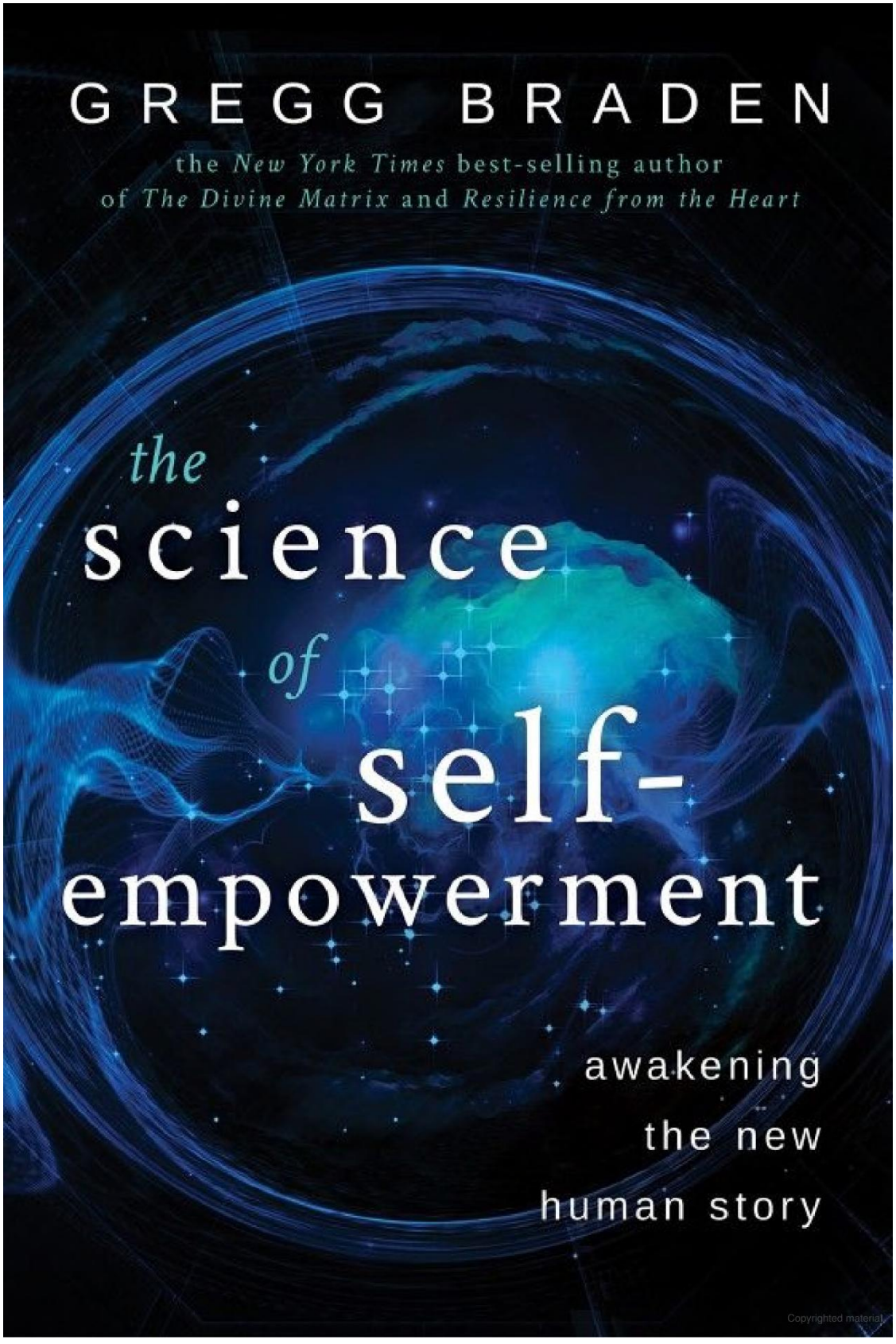
GREGG BRADEN
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of The Divine Matrix and Resilience from the Heart
the
science
of
self-
empowerment
awakening
the new
human story
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CONTENTS

AUTHOR'S NOTE

In Part II of this book, I use the term *wired* to indicate that we already have the biology we need and that we are predisposed to accomplish the extraordinary potentials described in each chapter.

Wired is a slang term that also has had other meanings in the past.

The original usage can be traced back to the days before telephones, when the telegraph was the primary mode of communication. At that time it was common to say that we had "wired" a message to someone, meaning that we had sent a telegraph message. Later meanings have varied from the jitters caused by ingesting too much caffeine or certain drugs to the way the neurons in our brains are connected. It's for these reasons that I'm clarifying my intent for the word right up front, before it's used in the following pages.

INTRODUCTION

Our Origin: Why It Matters

Since our earliest ancestors looked with awe into the distant stars of a moonless night sky, a single question has been asked countless times by countless numbers of people sharing the same experience through the ages. The question they've asked speaks directly to the core of every challenge that will ever test us in life, no matter how big or how small. It's at the heart of every choice we'll ever face, and it forms the foundation for every decision we'll ever make. The question that's at the root of all questions asked during the estimated 200,000 years or so that we've been on earth is simply this: *Who are we?*

In what may be the greatest irony of our lives, following 5,000 years of recorded history and technological achievements that stagger the imagination, we have yet to answer this most basic question with certainty.

Key 1: In the presence of the greatest technological

advancements of the modern world, science still cannot answer the most fundamental question of our existence: *Who are we?*

WHY OUR ORIGIN MATTERS

The way we answer the question of how we came to be as we are penetrates the essence of each moment of our lives. It forms the perceptual eyes—*the filters*—through which we see other people, the world around us, and most importantly, ourselves. For example, when we think of ourselves as separate from our bodies, we approach the healing process feeling like powerless victims of an experience that we have no control over. Conversely, recent discoveries confirm that when we approach life *knowing* that our bodies are designed to constantly repair, rejuvenate, and heal, this shift in perspective creates the chemistry in our cells that mirrors our belief.[1]

Our self-esteem, our self-worth, our sense of confidence, our well-being, and our safety stem directly from the way we think of ourselves in the world. From the person we say yes to when it comes to choosing a life partner and how long our relationship lasts once we create it, to what jobs we feel worthy of performing, the most important decisions we'll ever make in life are based in the way we answer the simple, timeless question *Who are we?*

On a more spiritual level, our answer creates the foundation for the way we view our relationship with God. It even justifies our thinking when it comes to trying to save a

human life, and when we choose to end one.

The way we think of ourselves is reflected in what we teach our children as well. When their delicate sense of self-worth is threatened by relentless bullying from rivals and classmates, for example, it's their answer to *Who am I?* that gives them the strength to heal their hurt. Their answer can even make the difference between when they feel worthy of living and when they don't.

On a larger scale, the way we think of ourselves determines the policies of corporations and nations that either justify dumping 12-million-plus tons of used plastic and thousands of gallons of radioactive waste into the world's oceans each year or show we cherish the living oceans enough to invest in preserving them.

Even how countries choose to create the borders that separate them and how our governments justify sending armies across those borders onto the land and into the homes of the people of another nation begins with the way we view ourselves as people. When we think about it, our answer to the most basic question—*Who are we?*—is at the core of everything we do and defines all that we cherish.

Key 2: Everything from our self-esteem to our self-worth, our sense of confidence, our well-being, and our sense of safety, as well as the way we see the world and other people, stems from our answer to the question *Who are we?*

It's precisely because the way we think of ourselves plays

such a vital role in our lives that we owe it to ourselves to explain who we are and where we came from as truthfully and honestly as possible. This includes taking into consideration every source of information available to us, from the leading-edge science of today to the wisdom of 5,000 years of human experience. *This also includes changing the existing story when new discoveries give us the reasons to do so.*

WHY WE NEED A NEW STORY

Over 150 years ago, geologist Charles Darwin published a paradigm-shattering book entitled *On the Origin of Species by Means of Natural Selection*, often shortened simply to *Origin of Species*. His book was intended to provide a scientific explanation for the complexity of life—how it has morphed over the ages from primitive cells to the complex forms we see today. Darwin believed that the evolution he witnessed in some parts of the world, in some forms of life, applied to all life everywhere, including human life.

In one of the great ironies of the modern world, since Darwin's time the very science that was expected to support his theory, and eventually solve life's mysteries, has done just the opposite. The most recent discoveries are revealing facts that fly in the face of long-standing scientific tradition, especially when it comes to human evolution. Among these facts are the following.

Fact 1: The relationships shown on the conventional human evolutionary tree—the dashed lines that connect one fossil to another and lead to modern humans at the top of the tree—are not based on evidence. While these relationships

are believed to exist, they have never been proven and are *inferred* or *speculative* relationships.

Fact 2: Modern humans arose suddenly on earth approximately 200,000 years ago with the advanced features that set us apart from all other known forms of life *already developed*.

Fact 3: The lack of common DNA between ancient Neanderthals, thought to be some of our ancestors, and early humans, whose DNA is similar to ours, tells us that we did not originally descend from the Neanderthals, even if we interbred with them at some point.

Fact 4: Advanced genome analysis reveals that the DNA that sets us apart from other primates is the result of an ancient, mysterious, and precise fusion of genes that suggests something *beyond* evolution made our humanness possible.

To be clear, the advanced features identified in Fact 2 didn't develop slowly over long periods of time, as evolutionary theory would suggest. Instead, characteristics that include a brain 50 percent larger than that of our nearest primate relative and a complex nervous system with emotional and sensory abilities fine-tuned to our world already existed in modern humans when they appeared. And humans haven't changed.

In other words, contemporary humans are the same humans, 2,000 centuries later!

These facts, which are based upon peer-reviewed science, present a problem for the long-held evolutionary story of our origins. The new evidence clearly doesn't support the conventional narrative of the past that we've been taught. The popular story that's being shared in our classrooms and

textbooks today leads us to believe we're insignificant beings that began as a biological fluke long ago, then endured 200,000 years of brutal competition and "survival of the strongest," only to discover that we're powerless victims in a hostile world of separation, competition, and conflict.

The scientific discoveries described in this book, however, now suggest something radically different. It's for this reason that we need a new story to accommodate the new evidence. Or conversely, we need to follow the evidence we already have to the new story that it tells.

Before his death in 1962, Nobel Prize–winning physicist Niels Bohr reminded us that the key to solving a mystery is found within the mystery itself. "Every great and deep difficulty bears in itself its own solution," he said. "It forces us to think differently in order to find it."[2] Bohr's words are just as powerful today as when he spoke them over half a century ago.

From fossils and grave sites to brain size and DNA, the existing evidence is already solving the mystery of the origin of our kind. It's already telling us our new story. The key is that we must first think differently about ourselves in order to accept what the story reveals. I've written this book as an invitation to do just that.

Key 3: By allowing new discoveries to lead to the new stories they tell, rather than forcing them into a predetermined framework of ideas, we may, at last, answer the most important questions of our existence.

WHY THIS BOOK?

The purpose of this book is to 1) reveal new discoveries about our origin, in Part I, and 2) show how to apply these discoveries in our day-to-day lives, in Part II. Rather than speculate upon how the first cell of life appeared upon the earth, I'll begin as Darwin did, *at the time following our mysterious origin.* Both Part I and Part II include exercises to help anchor the significance of specific discoveries in your own life.

WHAT THIS BOOK IS NOT

- *Science of Self-Empowerment* is not a science book. Although I will share the leading-edge science that invites us to rethink our relationship to the world, this work has not been written to conform to the format or standards of a classroom science textbook or a technical journal.
- *Science of Self-Empowerment* is not a religious book. It's not intended to support any particular religious belief regarding creation or human origins, such as Creationism. *Science of Self-Empowerment* is based upon the peer-reviewed scientific evidence (anthropological, paleontological, biological, and genetic) that begins *immediately after* our species appeared on earth. As such, there are places where the new story in this book may appear contrary to the traditional stories of religion, as well as to those of traditional science.

- *Science of Self-Empowerment* is not a peer-reviewed research paper. Each chapter *has not* gone through the lengthy review process of a certified board or a selected panel of experts conditioned to see our world through the eyes of a single field of study, such as physics, math, or psychology.

WHAT THIS BOOK IS

- This book *is* well researched and well documented. I've written *Science of Self-Empowerment* in a reader-friendly way that incorporates true-life accounts, scientific discoveries, and personal experiences to support an empowering way of seeing ourselves in the world.
- This book *is* an example of what can be accomplished when we cross the traditional boundaries between science and spirituality. By marrying state-of-the-art discoveries of biology, genetics, and earth sciences with ancient wisdom, we gain a powerful framework for understanding what's possible in our lives.

NEW DISCOVERIES MEAN A NEW STORY

If we're honest with ourselves and acknowledge that the world is changing, then it makes sense that our story in the world must change as well. In all likelihood, the new human story will be a hybrid of theories that already exist. These will be woven together into the new tapestry of a grand chronicle that describes an extraordinary and epic past. And with this

new story, at last we'll embrace the history that cannot be accounted for in any of the existing theories by themselves.

A growing body of evidence suggests that we are the product of something more than random mutations and lucky biology. But the evidence can only go so far. Fossils, DNA, ancient cave art, and human burial sites can only show us the remnants of what happened in the past. They cannot tell us why those things happened. Unless we find a way to travel backward in time, the truth is that we may never know the complete *why* of what has made our existence possible.

But maybe we don't need to know. Maybe it's not necessary to have that level of detail for us to shift the way we think about ourselves and change our lives. The discovery that we are the product of something more than evolution—very likely a conscious and intelligent act of creation—may be all we need to point us in a new, honest, and healthy direction when it comes to the human story.

The undeniable fact is that something happened 200,000 years ago to make our existence possible. And whatever that something was, it left us with the extraordinary abilities of intuition, compassion, empathy, love, self-healing, and more.

We owe it to ourselves to embrace the body of evidence, the story it tells, and the healing it can bring to our lives. The power of the emerging human story may help us bring true and lasting healing to the racial hate, the sexual violence, the religious intolerance, and the other devastating challenges we face, ranging from the abuse of technology to the plague of terrorism that's sweeping the earth. To do anything less is simply to place a Band-Aid on the emotional wound that creates these expressions of fear.

For the first time in the 300-year-long history of science, we're writing a new human story that gives us a new answer to the timeless question of who we are.

Key 4: New DNA evidence suggests that we're the result of an intentional act of creation that has imbued us with extraordinary abilities of intuition, compassion, empathy, love, and self-healing.

This book is written with one purpose in mind: to empower us in the choices that lead to thriving lives in a transformed world.

Gregg Braden
Santa Fe, New Mexico

PART I

the new human story

The purpose of the following chapters is to empower you with new ways of thinking and new reasons to think differently about yourself and the relationships in your life: the relationships that you have with other people, the relationship that you have with the earth and the world around you, the relationship that you have with yourself, and ultimately, the relationship you have with God / Spirit / Universal Source / the One. Before you discover these empowering implications, however, it helps first to establish what you believe right now—a baseline for the way you think about yourself and your place in the world.

The following exercise is not intended to judge you or criticize any existing thinking, feelings, or beliefs. It's simply a point of reference to identify beliefs that you may not be aware of, or to clarify beliefs that you may have only suspected in the past.

EXERCISE

Establishing a Baseline for Your Beliefs

Using your answers to the following questions as a place to begin, by the end of the book you will easily see where and how the new information you've learned has transformed the way you think of yourself and your potential. For this exercise, you'll need paper and pen.

The Technique. Using single words or brief phrases, please write down your answers to the following questions as honestly as you can. For yes-or-no questions, circle your answer.

- **Questions about Your Origins.**

    1. Do you believe that the origin of life, in general, is the result of a chance event that happened long ago, as conventional science suggests?

        Yes No

    2. Do you believe that human life in particular is the result of a chance event that happened long ago, as evolution theory suggests?

        Yes No

- **Questions about Your Potential.**

    3. Do you believe that you're designed to consciously influence the events of your life, the quality of your life, and how long you live?

        Yes No

        you answered no, continue to "Defining Your Beliefs" below.

        you answered yes, please answer questions 4 through 6:

    4. Do you trust your ability to trigger self-healing in your body on demand when you need it?

        Yes No

    5. Do you trust your ability to trigger your deepest states of intuition when you need them, on demand?

        Yes No

    6. Do you trust your ability to self-regulate your immune system, your longevity hormones, and your overall health?

Yes No

- **Defining Your Beliefs.** Finish the following sentences.

    7. When I notice something unusual happening with my body (sudden aches or pains, an unexplained rash, a rapid heartbeat for no apparent reason, and so forth) I find myself *feeling* _____.

    8. When I notice something out of the ordinary happening with my body, *the first thing I will do is* _____.

chapter one

Breaking Darwin's Spell

Evolution Is a Fact—Just Not for Humans

"Who are we . . . but the stories we tell about ourselves, particularly if we accept them?"

— Scott Turow (1949–), American Author

"Why are you here?" a voice asked from somewhere in the darkness.

From what sounded like a faraway place, a man was asking the question, yet he sounded so distant that I wasn't sure if he was speaking to me or to someone else. I remember the sensation of feeling both awake and asleep at the same time and thinking that maybe I was dreaming. It didn't even occur to me that I could open my eyes to see who the man was. Then I heard his voice again, this time speaking my name. "Gregg . . . you're okay. You did great. But I need you to tell me why you're here." This time I knew I wasn't dreaming—the man knew my name and he was speaking directly to me. Instinctively, my eyes began to open as I turned my head in

his direction. The light overhead was so bright that it forced me to squint as I looked up at the ceiling from my bed. Surprisingly, the man wasn't far away at all. In fact he was standing right next to me, looking down at me from behind a blue surgical mask. Seeing him jolted my memory and suddenly I remembered what was happening.

I was awakening from the anesthesia I'd been given earlier that morning. I was in the post-operation recovery room of the Mayo Clinic in Jacksonville, Florida. The voice I was hearing was the doctor who had reassured me only an hour or so earlier that I was in good hands with his team, and that I would be okay. And while he continued his assurances, I wasn't prepared for the question he kept asking about why I was there.

Less than a month before, an examination at a different clinic had shown an anomalous growth on the wall of my bladder. "Something is in your bladder that shouldn't be there," that first doctor had told me. "It needs to be removed." Wanting to ensure the best possible outcome for whatever was needed, I'd gone to the prestigious Mayo Clinic for a second opinion. It was there that I discovered that the only way to determine with certainty that the growth was benign was to test the tissue itself—to perform a biopsy.

What was happening now, however, was not part of the original plan. After being fully anesthetized and prepped for surgery, I was waking up to a puzzled doctor asking a question that I could barely answer in my altered state of consciousness: Why was I there? He was asking the question because the anomalous growth that had shown up in the previous exams was no longer there. The surgeon was telling

me there was nothing to remove because I had a normal and healthy-looking bladder. To emphasize his point, he showed me a color photograph of the inside of my bladder, taken only moments before.

As I did my best to grasp what he was saying, the surgeon used the tip of his pen as a pointer to show me where the growth had been in the earlier scans. He emphasized, however, that today there was no bruising, no discoloration, and no scar tissue or any sign whatsoever to indicate that anything out of the ordinary had ever existed. And he wanted to know why. He wanted to know how such a thing could have happened.

In my groggy state I was not as eloquent with my answer as I would have liked. I did my best to tell the doctor about the research I'd done into the self-healing potential of the human body, the ancient traditions that had mastered this healing potential, and the science that now confirms that our bodies can heal themselves when given the conditions to do so. The last memory I have of this doctor is of him turning away and walking toward the door as I tried my best to answer his question. The explanation I was offering for what we'd both experienced that day was obviously not what he had expected, nor what he wanted, to hear.

When I thought about my doctor's response later, after my recovery, I could understand his frustration. There is absolutely nothing in the training of a modern medical professional that allows for us to have such self-healing relationships with our bodies. And it's for precisely this reason that when an experience such as mine occurs, the medical team has limited options when it comes to offering

an explanation. They generally chalk it up to a mistaken diagnosis, an unexplainable spontaneous recovery, or simply a miracle.

From my doctor's point of view, a miracle had just happened in his operating room and he was trying to make sense of it. From my point of view, however, what had happened was less about a miracle and more about a technology—a powerful inner technology that's available to each of us—whose existence has been largely forgotten over time.

Since 1986, I have researched the wisdom, studied the principles, and where possible, experienced the techniques embraced by ancient and indigenous traditions when it comes to our ability to self-heal. From the monks, nuns, and abbots in the monasteries of Tibet, Nepal, and Egypt to the indigenous healers and shamans of the Yucatán jungles in Mexico and the Andes Mountains of southern Peru, our ancient ancestors, and their modern counterparts, have done their best to preserve the knowledge of the most intimate relationship we can ever have: our relationship with our own bodies. And while the knowledge they preserved is not science in the traditional sense, new scientific discoveries in genetics, molecular biology, and the new fields of epigenetics and neurocardiology have confirmed many of the relationships described in the ancient traditions.

When it came to my own body, however, even though I strongly believed that self-healing was possible and had even witnessed other people's success at it, a combination of my scientific training and the limiting beliefs instilled in me at an early age by my alcoholic father and dysfunctional family

environment had left a deep doubt that such a healing was possible for me. So even though I'd performed the yogic techniques, qigong, and other healing modalities, taken the medicinal herbs, adopted a raw diet, and accepted emotional changes to the best of my ability between my diagnosis and the procedure at the Mayo Clinic, I still doubted my capacity to create for myself the successful healings that I'd seen occur with others. And it was because of my doubt that I had chosen the modern technology offered through one of the highest-rated medical facilities in the world as a responsible option for the diagnosis I'd received.

As a trained scientist, I cannot say to you that the practices, techniques, and lifestyle changes I adopted during those two weeks were the reason the medical team found nothing to remove the day of my surgery. What I can say is that new scientific discoveries have identified a link between specific healing modalities known in the past and their ability to restore balance in our bodies. It's the fact of this relationship that invites an honest reassessment of the limiting story we've been told about our origin as a species and what we're capable of. When we consider the facts revealed by the best science of today, spontaneous healings and miracles such as the one I experienced seem less rare and extraordinary and more like an ordinary part of everyday life. The chapters that follow reveal these discoveries and the story they tell. And with that larger story, we're given the reasons to embrace a new answer to the question *Who are we?* and to write our new human story.

If you've ever felt that there's more to the story of our past than we've been led to believe, I want you to know you're not alone. A 2014 Gallup poll revealed that in the United States alone, a whopping 42 percent of the people who were asked believe that there's something more to human origins than is typically acknowledged in the mainstream—*that something beyond Charles Darwin's theory of evolution is responsible for our existence.*[1] The results of this poll reflect a growing sense that we humans are part of something great, powerful, and mysterious. Some of the greatest minds in science agree.

SOMETHING IS MISSING FROM THE HUMAN STORY

Francis Crick, the Nobel Prize–winning co-discoverer of the DNA double helix, believed that the eloquence of life's building blocks has to be the result of something more than a lucky quirk of nature. Through his pioneering research, he was one of the first humans to witness the complexity and the sheer beauty of the molecule that makes life possible. Late in life, Crick risked his reputation as a scientist by publicly stating, "An *honest* man, armed with all the knowledge available to us now, could only state that in some sense, the origin of life appears at the moment to be almost a miracle."[2] In the scientific world, this statement is the equivalent of heresy, suggesting that something more than chance evolution led to our existence.

The feeling that there's something more to our story is not just a recent phenomenon. Archaeological discoveries show that, almost universally, ancient humans felt connected to

more than just their immediate surroundings. They sensed that we have our roots in other worlds, some that we can't even see, and that we are ultimately part of a cosmic family that lives in those worlds.

The sacred text of the ancient Mayan *Popol Vuh*, for example, describes how the "Forefathers" created humankind, while the Christian Bible and the Hebrew Torah describe how we are the descendants of wise and powerful beings linked to a greater and otherworldly intelligence.[3,4,5] Could there be a simple explanation as to why such a sense has remained with us so strongly, across such diverse traditions, and has lasted for so long? Is it possible that our feeling of having an intentional origin and a greater potential is based in something that's true?

When we ask *Who are we?* the short answer is that we're not what we've been told and we're more than most of us have ever imagined.

WE ARE A SPECIES OF STORIES

From the time of our earliest ancestors, we've used stories to explain the world around us and describe our place in it. Sometimes our stories are based in fact. Sometimes they're not. Some stories are metaphorical. We've used these stories to explain the unexplained and make sense of our existence.

The ancient Egyptians, for example, thought of the earth, the space beneath the earth, and the sky above as worlds unto themselves. In their view of creation, the earth beneath their feet was floating upon Nun, a primordial ocean that was the source of the Nile River. The sky above was formed by the

body of the goddess Nut. The dome of Nut's rounded belly was the home of the sun and the stars as she arched over the earth, facedown, throughout time. The realm under the earth, Duat, was where the sun would go at night as it disappeared beneath the horizon at sunset.[6]

All these realms had deities—gods and goddesses—associated with them that played a powerful role in the daily lives of the Egyptian people. And while the stories weren't based in science, they worked for the people of the time. They provided a mechanism to explain what the ancient Egyptians saw happening in their everyday world and helped them know where they fit in.

Today, we continue to use stories to explain our world. And our stories play a role that's more important than ever. Not only do they inform the way we manage everything from disease and healing to our relationships and romances; on a global level, the future of our planet and the survival of our species, which now hang in the balance, also depend on the stories we choose to embrace. It's precisely for these reasons that it's vital we tell ourselves the right story.

OUR STORIES DEFINE OUR LIVES

We cherish the stories we create. As individuals we often proudly share our family history and the accomplishments of our ancestors. As nations we defend with pride our teams' athletic achievements at the Olympics, the scientific and technical advancements that sent our astronauts to the moon, and the flags that unite us as countries. But sometimes we find ourselves defending stories that we've grown up with

even when new discoveries tell us these stories are wrong. It's our willingness to cling to a story that's familiar, even if new evidence shows us it's obsolete, that may be the greatest hurdle we face as we learn to embrace our world of extremes in a healthy way.

Key 5: The stories that we tell ourselves about ourselves —and believe—define our lives.

A commonly used axiom suggests that if we hear something said often enough we begin to accept that something as fact, whether or not it's true. The sanitized story of smoking tobacco that was generally accepted until the early 1960s is a perfect example. Prior to a 1964 report on the dangerous effects of cigarette smoking, America's tobacco companies were engaged in a powerful media campaign to convince the public that smoking was a safe, even a healthy, habit. Catchy slogans such as "When tempted to over-indulge, reach for a Lucky instead," "I protect my voice with Luckys," and "As your dentist I would recommend Viceroys" were common in magazine, radio, and television advertisements.[7]

A particularly disturbing poster for Camel cigarettes from the 1940s stated that, according to a nationwide survey, "More doctors smoke Camels than any other cigarette."[8] A further investigation into the survey revealed the rest of the story. The questions had been asked of doctors who had received complimentary packs of Camel cigarettes at meetings and conferences before they took the survey. It was after they'd received the free samples that they were asked

what brand they liked best or had in their pockets. The samples effectively skewed the answer in favor of Camels. American consumers trusted and believed these and other ads. After all, if a cigarette was safe for doctors, it must be safe for everyone else, right?

The perception of such messages, and of tobacco use itself, however, changed forever with the landmark study from the surgeon general. For the first time, the study reported scientifically what many people had suspected intuitively. It described a direct link between tobacco use, chronic bronchitis, and lung cancer. The study stated, "It is the judgment of the committee that cigarette smoking contributes substantially to mortality from certain specific diseases and to the overall death rate."[9] By 1965, the tobacco industry was required to place the now-familiar warning labels on every tobacco product sold.

The point of this example is to illustrate that a belief once shared by the mainstream media and the general public—the story that smoking tobacco is safe—changed over time. It had to change because the evidence of debilitating diseases experienced by so many tobacco users simply didn't fit the mainstream story of safety and health. It didn't jibe with what people actually experienced.

WE'RE SOLVING 21ST-CENTURY PROBLEMS WITH 19TH-CENTURY THINKING

In a similar way, an information campaign to skew public opinion is happening today when it comes to us and the story

of our origin. The 19th-century theory of human evolution is taught as undisputed fact in today's classrooms, leaving no room for consideration of any other possible explanation for the mystery of our existence. And because the mainstream story does not take into account recent discoveries, it leaves us unprepared to address the radical social issues and global challenges we're experiencing today, including everything from terrorism, bullying, and hate crimes to the epidemic of drug and alcohol abuse among young people.

Because we are invested in the theory of evolution, we use it to guide our decisions, and so we celebrate competition and force over cooperation and compassion. Among other things, we keep trying to solve problems associated with our racial, religious, and sexual diversity through the obsolete thinking of competition and "survival of the strongest"—both of which are key components of the theory of evolution. It makes no sense when we think about it, and yet, for reasons of habit, money, ego, and power, the mainstream educational system and educators cling to an outdated story of human origins that's no longer supported by the evidence. Both the tobacco story and the story of human origins illustrate perfectly why it's important to get our stories right—and what can happen when we don't.

CHANGE THE STORY, CHANGE YOUR LIFE

When it comes to the human family, the shared stories of our successes, the memories of our tragedies, and the inspiring examples of our heroism are the threads that connect us. Our connection is powerful, primal, and necessary. Whether it's

the big issues of politics, religion, or shipping weapons to "freedom fighters" in war-torn countries half a world away, or deeply personal issues such as the right of a gay man to marry or a woman's right to control her own body, modern technology now allows us to share the stories that justify our choices and the future we want to create.

English novelist Terence David John Pratchett, known to his fans as Terry Pratchett, beautifully described the awesome power of our stories when he said, "Change the story, change the world."[10] I think there's a lot of truth in this statement. Our lives are reflections of what we believe about ourselves and how the world works. Pratchett's observation is so universal, in fact, that we can take it one step further.

In the same breath that we say, "Change the story, change the world," we can go to an even deeper level by saying, "Change the story, *change our lives*." Both statements are true. And both offer a powerful way of thinking in the darkest moments of our lives.

Key 6: When we change the story, we change our lives.

The scientific narrative regarding the vastness of the cosmos, and our insignificance in it, is a perfect example of the powerful influence that a story can have on us. It also illustrates the axiom that if we tell a story enough times we begin to accept it as true.

THE OLD STORY: SMALL, POWERLESS, AND INSIGNIFICANT

For the last century and a half we've been steeped in a cosmic story that leaves us feeling like little more than trivial specks of dust in the universe, or biological sidebars in the overall scheme of life. Carl Sagan described this mind-set perfectly when he commented on the scientific perspective on our place in the cosmos: "We find that we live on an insignificant planet of a humdrum star lost in a galaxy tucked away in some forgotten corner of a universe in which there are far more galaxies than people."[11]

This kind of limited thinking, promoted by the scientific community, has led us to believe that we're unimportant when it comes to life in general and also separate from the world, from one another, and ultimately, even from ourselves.

Albert Einstein echoed this perception of our insignificance when it came to his ideas about the validity of the evidence in the emerging field of quantum physics that suggested that all things are deeply connected. Einstein couldn't accept the fact of that connection. Leaving no doubt in our mind as to what he believed the new quantum ideas meant for science, Einstein said, "If quantum theory is correct, it signifies the end of physics as a science."[12] His beliefs wouldn't allow him to actually accept the possibility that we live in a world where everything and everyone is so intimately linked.

One of the reasons for Einstein's resistance to the ideas of the new physics was that to live in a world of quantum connection would mean we have the ability to influence what

happens in our lives and are faced with the responsibility for the outcomes we create. Ultimately, it was Einstein's firm belief that we live in a world where things are not connected that prevented him from fulfilling his life's dream. He passionately believed that his research would eventually lead him to discover a scientific truth that united all the laws of nature, a "theory of everything." Sadly, Albert Einstein died in 1955 without seeing his elusive dream realized.

With Einstein and Sagan's legacies of separation and human insignificance in mind, it's not surprising that we often feel helpless when it comes to what happens in our bodies and lives. In a world of disconnection, we're told that things just happen whenever and however they do. Is it any wonder that we often feel powerless when we see the world changing so fast that some say it's "falling apart at the seams"?

Charles Darwin's proposal regarding human evolution in the mid-1800s laid the foundation for the scientific conclusions of our insignificance that came later, in the early 1900s. The theory of evolution was based upon the premise that we are the latest result of a series of chance events that have never been witnessed, proven, or duplicated, and we can attribute the fact that we still exist to the "survival of the strongest" among us. The theory that struggle has gotten us to where we are today suggests that we're hopelessly locked into lives of competition and conflict. Culturally, this idea is now accepted to such a degree that many people believe that using force is the best way to do things in the workplace and in the community of nations.

Consciously, and sometimes on levels that are unconscious,

this belief of struggle and conflict plays out every day in our lives. And it happens sometimes in surprising, unexpected ways. For example, when we find our "hot buttons" being triggered by those who know us best in our most intimate relationships, even the most spiritually minded among us will lash out, using hurtful tactics to protect ourselves in the moment. The reason is not surprising.

From the time we're born, and even before, while we're still in our mothers' wombs, we begin to learn how to cope with the world through the thoughts and feelings of our caregivers. We learn from the tone of our mothers' voices, for example, when the world is safe and when it's not. We also learn to associate the chemicals of stress, as well as the chemicals of pleasure, that flow through our bodies with the voices, sounds, and experiences that trigger the release of those chemicals.

Unless we are fortunate enough to come from a really healthy family of caregivers, the chances are good that their responses to the world are based upon the false conditioning they learned from the caregivers in their early lives. And it's precisely these patterns from other people, sometimes generations old, that become our patterns as well.

So when we feel threatened as adults, it's these conditioned patterns that show up in whatever way our minds deem necessary for our survival. When the patterns kick in, they draw from the deep well of whatever beliefs are "hardwired" into our subconscious minds. The key here is that these beliefs are often rooted in the stories and experiences of other people.

Do we lash out violently, as we're conditioned to do

through our stories of "survival of the strongest"? Or do we respond confidently and honestly, embracing the deeper knowledge of our connection with all life, including our connection with the people who've just triggered us?

To be absolutely clear, I'm not suggesting that either response is right or wrong, good or bad. I am saying, however, that our reactions don't lie. Regardless of what we may think we believe, the way we respond in such intimate moments is a telling reflection of what we truly believe. The point here is that the stories we're told during our most vulnerable and impressionable years of childhood form our most deeply held beliefs. And that's where the story of our origins comes in too.

A TALE OF TWO ORIGINS

We begin hearing the story of human origins early in life. And depending upon our families' beliefs, sometimes we're even exposed to two entirely different and conflicting stories taught around the same time—one at home and the other at school.

In most schools we're taught the scientific theory of evolution by natural selection, which is a sterile and unsettling story for any young person to hear. It begins long ago with an unbelievable run of good luck, when *just* the right atoms combined at *just* the right time to create *just* the right molecules under *just* the right conditions to lead to the first simple forms of life that would eventually become the complexity of us.

Even the most passionate supporter of evolution must

admit that the uncannily good fortune required for such a series of events requires a stretch of imagination, or faith, that such a process is even possible. As noted previously, Francis Crick called the existence of DNA "almost a miracle."

Evolution theory accounts for this good fortune, however, suggesting that it's the struggle itself—the competition among varying forms of life—that made this unlikely combination of events successful. Proponents of evolution claim that competition has led us to be the present-day winners in nature's multimillion-year-long quest to survive. The key here is that we're told that "struggle" has served us well in the past, and by extension, still serves us today. In fact, struggle has been so successful, we're told, that it's actually been "programmed" into our bodies genetically. So because of natural selection, we're now supposedly hardwired for competition and struggle.

At the same time that children are learning the scientific story of evolution and struggle in school, they're often told a religious story that's equally frightening. This story also begins at the time of our beginning. And it also requires a stretch of the imagination to believe that it is even possible. In Judaism, Christianity, and Islam, this story is the story of a mysterious force—God—and how God created the first human from the dust of the earth, breathed life into the being he created, and caused the first human, Adam, to wake upon Earth.

From this story we learn that we are the descendants of Adam and his children, and that we come into this world inherently flawed as people. The rest of the story describes how we're destined to struggle between good and evil as we

search for a way to redeem ourselves from our flaws. Other world religions use similar stories to explain the origin of humankind and the purpose of life.

Both stories—the scientific and the religious—begin long ago. Both have mysterious gaps in the details. And both leave us feeling separate from the rest of our world. Perhaps most importantly, both stories leave us with the feeling that we exist as we do on earth today as unwitting combatants locked into a hopeless struggle for survival—either with nature or between good and evil. From either the scientific or the religious point of view, as different as the stories may seem on the surface, when we look a little deeper, we realize that they start from the same place and have the same purpose. They begin with the fact that we exist as we do, and they are attempts to explain what our ancient existence means for us today.

Despite emerging evidence that does not fit with the traditional scientific story, educators perpetuate the theory of evolution and human survival, and teach it in our classrooms, as if it were an absolute and undisputed fact. And this is where the problem begins: We're trying to solve modern problems that require cooperation and mutual aid through a 150-year-old story based in competition and struggle. Not surprisingly, the story we've embraced—the theory of evolution—no longer makes sense in addressing where we come from and how we've become as we are. We need a new human story that reflects the new evidence in order to break the spell Darwin's ideas have on us.

BREAKING DARWIN'S SPELL

Darwin published *Origin of Species*, his best-known book, in 1859. From the time of its publication until today, the implications of this book have reverberated through the foundation of our society. Whether it's the academic controversy of where we come from and why we're here, or the emotionally charged issues of conception, abortion, and the death penalty that sometimes polarize families and whole communities, the implications of Darwin's work impact our lives in a way few other ideas can. I often wonder if Darwin himself ever imagined the effect that his work would have on the world and how deeply his ideas would influence the lives of everyday people living over a century into his future.

Before *Origin of Species*, there were few sources to turn to when it came to answering life's biggest questions. Prior to the mid-19th century, the philosophical questions of life, such as *Where do we come from? Why are we here?* and *How do we make life better?* were relegated to religion and traditional folklore. With the publication of Darwin's first book, this changed. The theory of evolution offered a new story to answer life's big questions that didn't require biblical interpretations or religious teachings.

Key 7: For the first time in recorded human history, Charles Darwin's theory of evolution, published in 1859, allowed science to answer the big questions of life and our origin without the need for religion.

While the full title of Darwin's book, *On the Origin of Species by Means of Natural Selection*, may sound complex, the idea that it's based upon is really very simple. Darwin proposed that all life, including human life, began with a single primal organism that mysteriously appeared on earth long ago. Darwin didn't even attempt to describe how that organism first came into existence. In fact, contrary to what many people commonly assume, the actual origin of life was never his focus. While he readily acknowledged that the science of his day had yet to shed any meaningful light on that mystery, he also admitted that solving the mystery of how life began wasn't necessary for his theory of evolution to be accepted.

Darwin defended his beliefs by using the analogy of another unsolved mystery to make his point. He pointed to the scientific acceptance of gravity as an analogy for how it's possible to accept a theory even though it hasn't been fully explained. "It is no valid objection," he said, "that science as yet throws no light on the far higher problem of the essence or origin of life. Who can explain what is the essence of the attraction of gravity? No one now objects to following out the results consequent on this unknown element of attraction."[13]

From this and similar statements, it's clear that Darwin was less concerned with *how* life originally appeared and more concerned with *what happened after* it did so. Specifically, how did the simple form of life that he believed first emerged in the world morph into the complexity and diversity that we see as life today?

Darwin based his theory of evolution on his personal experience and direct observations. Many of those observations were made during a five-year journey aboard

the British research ship the HMS *Beagle*.[14] Darwin was the designated naturalist on the ship, whose mission sounds much like the mission to document new forms of life in unknown galaxies for the starship *Enterprise* (of *Star Trek* fame). His job was to document new forms of life in the uncharted lands discovered during the *Beagle*'s voyage. Although Darwin's journey lasted from 1831 to 1836, he didn't share his theory until 23 years later. With the publication of *Origin of Species*, for the first time the essence of Darwin's theory of evolution was available to the general public. He writes:

> But if variations useful to any organic being do occur, assuredly individuals thus characterized will have the best chance of being preserved in the struggle for life; and from the strong principle of inheritance they will tend to produce offspring similarly characterized. This principle of preservation, I have called, for the sake of brevity, Natural Selection.[15]

Today, over 150 years after Charles Darwin first published his theory, the best scientists of the modern world, from the best universities of our time, having access to the most funding in research history and using the most advanced technology ever available, are still struggling to prove the viability of this theory in general, and specifically when it comes to humans.

In essence, the unanswered questions are:

- Does evolution alone explain the diversity that we see in the natural world today?
- Does evolution apply to humans?

As we'll see in the sections that follow, new discoveries are making it necessary to rethink the way we've answered both these questions in the past.

EVEN DARWIN HAD HIS DOUBTS

Charles Darwin didn't know in his day what we know today about the world. He couldn't have. Many fields of science that we take for granted simply didn't exist until later in the 19th century and early in the 20th century. Darwin couldn't have known about genetics, for example. While the fact that one generation can inherit the traits of its parents was recognized during Darwin's time, exactly what made the transfer possible—DNA—was not understood until after his death. Darwin couldn't have known about the specialized heart cells that give us access to the extraordinary abilities and sensitivities that will be described later in the book. And he couldn't have known that those cells, or the capabilities they make possible, already existed when modern humans appeared on the scene 200,000 years ago.

While Darwin couldn't have known these things specifically, he clearly suspected that future discoveries would overturn at least some of his theory. He stated this possibility in his writings. In *Origin of Species*, he writes: "If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous successive slight modifications"—the hallmark of evolution—"my theory would absolutely break down."[16]

It's because the conditions that Darwin himself described as the keystone to his theory have now been overturned—

because in fact we do have complex organs that did not form through "numerous successive slight modifications"—that evolution theory, alone, cannot explain what we find in the real world. In other words, just as Darwin suspected would happen, his theory has broken down.

In *Origin of Species* Darwin revealed his suspicion that evolution theory might not be enough to explain the complexity of life. Though the following statement may appear a bit wordy, it's Darwin's language. I'm sharing it so that you'll have a sense of his reservations—in this case, with regard to the complex functions of an eye.

> To suppose that the eye with all its inimitable contrivances for adjusting the focus to different distances, for admitting different amounts of light, and for the correction of spherical and chromatic aberration, could have been formed by natural selection, seems, I freely confess, absurd in the highest degree.[17]

The fact that the complexity of the eye, as well as the complexity of a number of other organs, meets the condition that Darwin himself stated would invalidate his theory, opens the door to the theme for Part I of this book: Evolution in and of itself is not enough to account for the extraordinary features and abilities we've had from the beginning. The evidence suggesting that certain physical features—including our eyes, our advanced nervous systems, and our brains—were already functional when modern humans arose is casting doubt on Darwin's theory when it comes to humankind.

HUMAN EVOLUTION: SPECULATION TAUGHT AS

FACT

The conventional thinking of today leaves us with the sense that Darwin's theory of evolution is a "done deal." That it's an open-and-shut case universally accepted by the scientific community and there is little room for doubt when it comes to the explanation of life as we see it today. Evolution is described as fact in textbooks and classrooms. In this environment of unconditional acceptance, scientific discoveries that cast doubt on evolution are often not reported, or worse yet, are ridiculed as superstition, religion, or pseudoscience. For this reason, people are often surprised when there is any mention of discoveries casting doubt on Darwin's theory.

A perfect example of this one-sided view is the choice by the Public Broadcasting Service (PBS) to exclude any competing scientific theories or scientific criticism of evolution in their beautifully produced eight-hour miniseries *Evolution: A Journey into Where We're from and Where We're Going*, which aired in 2001. In the network's own words, the goals of the program were to "heighten public understanding of evolution and how it works, to dispel common misunderstandings about the process, and to illuminate why it is relevant to all of us."[18] And for anyone watching the series, they did just that, illustrating evolution solely from Darwin's perspective, which many scientists see as flawed for reasons that will be described later in this chapter.

A review of the PBS special by author and former White House speechwriter Joshua Gilder minced no words with regard to the way the content was produced: "The problem

[with the PBS documentary] is that none of it is true, or is so fraught with inconsistencies, misinterpretation, and bad (sometimes fraudulent) data as to be worthless as science."[19] Gilder based his critique, in part, upon the scientific discoveries documented by molecular biologist Jonathan Wells in his book *Icons of Evolution*, where the PBS "proofs" of human evolution are dismantled one by one.

TAKING EVOLUTION TO THE COURTS

The evolution controversy is especially visible when it comes to state and national laws regarding what teachers are allowed to teach in public schools. A recent Senate bill in the state of Oklahoma is a perfect example of this. In 2016, Republican senator Josh Brecheen introduced legislation to allow teachers to encourage their students to think critically about the topics that affect their lives and their future.

Brecheen's proposed legislation, Senate Bill 1322, states that the purpose of the legislation is to "create an environment within public school districts that encourages students to explore scientific questions, learn about scientific evidence, develop critical thinking skills and respond appropriately and respectfully to differences of opinion about controversial issues. . . . Teachers shall be permitted to help students understand, analyze, critique and review in an objective manner the scientific strengths and scientific weaknesses of existing scientific theories covered in the course being taught."[20]

While Brecheen's bill does not mention the teaching of

evolution specifically, it's clear from his history of introducing similar legislation since his election in 2010, and the inclusion of the phrase *scientific theories*, that his goal was to allow teachers to share discoveries related to human origins, including discoveries that don't support the existing story of evolution.

In 2005, the legal ruling informally known as the Dover Case was about evolution specifically, and about the way a new, alternative theory of human origins known as *intelligent design* relates to evolution. The case made worldwide headlines because it was the first legal test of the new theory in a U.S. federal court.

The Dover Case began when eleven families filed a lawsuit against the Dover Area School District of York County, Pennsylvania, over a change in the required curriculum for a ninth-grade biology class. In 2004, the school district had directed teachers to offer discoveries supporting intelligent design in addition to the traditional teaching of Darwin's theory of evolution. Proponents of the theory of intelligent design, which was first used in the book *Of Pandas and People* in 1989, assert that "certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection."[21] Both theories were being offered in the classroom as possible explanations for human origins. The parents who filed the suit felt, however, that the ideas of intelligent design were too similar to the religious ideas of creationism, a belief that the universe and living organisms originate from acts of divine creation, so they demanded that the teaching of the new theory be discontinued.

The case was heard as a bench trial, rather than a trial by jury, and the outcome immediately sparked controversy when the judge ruled that the conclusions drawn from the science-based discoveries underlying intelligent design were, in fact, not science at all.

From the United States District Court for the Middle District of Pennsylvania, with John E. Jones III (appointed by George W. Bush in 2002) as the sitting judge at the time, the finding reads as follows:

> Teaching intelligent design in public school biology classes violates the Establishment Clause of the First Amendment to the Constitution of the United States (and Article I, Section 3, of the Pennsylvania State Constitution) because intelligent design is not science and "cannot uncouple itself from its creationist, and thus religious, antecedents."[22]

Immediately following the trial there were accusations of false testimony, even perjury, when it came to the details and expert witnesses called to reveal the scientific evidence for intelligent design. Due to the nature of a bench trial, where there are no jurors, the religious and political beliefs of the judge, and the questionable testimony, the controversy continues today.

To be absolutely clear, I'm not suggesting that intelligent design is the answer to the mystery of human origins or that the trial should not have happened. What I am saying is that I believe we owe it to ourselves to be honest about any new discoveries that are made and to consider where they may lead. What is troubling about this court ruling is what appears to be a double standard used to discount the science that supports intelligent design. On one hand, the 150-year-

old theory of evolution—one that has yet to be scientifically proven—is taught as fact. On the other hand, scientific evidence suggesting that the theory of evolution is incomplete or leading us in the wrong direction is not even allowed to be mentioned in the classroom.

When we're denied the opportunity to question existing theories and present new ones based upon new evidence, we also lose the power of critical thinking that we will need if we are to successfully confront the challenges of today's world and survive those of the future.

It's the authoritative nature of beautiful and convincing documentaries, such as PBS's *Evolution*, and the skewed nature of the legal arguments, such as those made in the Dover trial, that lead many people to believe that Darwin's theory of evolution is an open-and-shut case for natural selection. Nothing could be further from the truth.

While many scientists have, in fact, accepted evolution as the best theory to explain the mystery of human origins, so far their acceptance does not exclude the recognition of new theories, especially when the new theories are anchored in good science.

I've included the objections to evolution in *Science of Self-Empowerment* for two reasons:

1. To give visibility to the fact that Darwin's theory of evolution is not an accomplished fact when it comes to science explaining who we are
2. To give voice to a sampling of the esteemed scientists who object to evolution theory in a way that is not reflected in the mainstream media today

In the remainder of this chapter, I'll share some of the opinions that continue to fuel the fires of controversy regarding the theory of human evolution.

ONE HUNDRED FIFTY YEARS OF OBJECTIONS

Passionate objections to Darwin's theory appeared almost as soon as his book was published in 1859. The first was raised by Louis Agassiz, who is regarded as one of the great scientists of the 19th century. His pioneering legacy is recognized in the field of natural history, specifically for his work in the areas of geology, biology, paleontology, and glaciology. His tireless dedication to his work took such a priority in his overall life that he once declared to a colleague, "I cannot afford to waste my time making money."[23] In other words, he was so consumed with his research and making discoveries about the natural world that making a living was secondary. While he and Darwin were both using the same methods and looking at the same information, their interpretations couldn't have been more different.

Commenting on Darwin's theory in an 1874 publication, Agassiz wrote, "The world has arisen in some way or another. *How it originated is the great question, and Darwin's theory, like all other attempts, to explain the origin of life, is thus far merely conjectural.* I believe he has not even made the best conjecture possible in the present state of our knowledge."[24]

Agassiz was not alone in his objections. A community of respected scientists has objected to Darwin's work from the

time it was first published. That community continues to grow. Its roster now sounds like a who's who of leading minds in contemporary science. Following is a sampling of the types of criticisms that have been raised from the time Darwin introduced his theory in 1859 to the present.

"Darwin's theory is not inductive—not based on a series of acknowledged facts pointing to a general conclusion."[25]

— Adam Sedgwick (1785–1873), Cambridge University, British geologist and one of the founders of modern geology

"There are . . . absolutely no facts either in the records of geology, or in the history of the past, or in the experience of the present, that can be referred to as proving evolution, or the development of one species from another by selection of any kind whatever."[26]

— Louis Agassiz (1807–1873), Harvard University, American geologist

"The theory suffers from grave defects, which are becoming more and more apparent as time advances. It can no longer square with practical scientific knowledge, nor does it suffice for our theoretical grasp of the facts. . . . No one can demonstrate that the limits of a species have ever been passed. These are the Rubicons which evolutionists cannot cross. . . . Darwin ransacked other spheres of practical research work for ideas. . . . But his whole resulting scheme remains, to this day, foreign to scientifically established zoology,

since actual changes of species by such means are still unknown."[27]

— Albert Fleischmann (1862–1942), University of Erlangen, German zoologist

"Evolution became in a sense a scientific religion; almost all scientists have accepted it and many are prepared to 'bend' their observations to fit with it."[28]

— H. S. Lipson (1910–1991), University of Manchester Institute of Science and Technology, British physicist

"Evolution is the backbone of biology and biology is thus in the peculiar position of being a science founded on unproven theory. Is it then a science or a faith? Belief in the theory of evolution is thus exactly parallel to belief in special creation. Both are concepts which the believers know to be true, but neither, up to the present, has been capable of proof."[29]

— Leonard Harrison Matthews (1901–1986), Cambridge University, British zoologist

"The chance that higher life forms might have emerged in this way is comparable with the chance that a tornado sweeping through a junkyard might assemble a Boeing 747 from the materials therein. I am at a loss to understand biologists' widespread compulsion to deny what seems to me to be obvious."[30]

— Sir Fred Hoyle (1915–2001), Cambridge University, British astronomer; formed the theory of stellar nucleosynthesis

"Ultimately the Darwinian theory of evolution is no more or less than the great cosmogenic myth of the twentieth century. The truth is that despite the prestige of evolutionary theory and the tremendous intellectual effort directed towards reducing living systems to the confines of Darwinian thought, nature refuses to be imprisoned. In the final analysis we still know very little about how new forms of life arise. The 'mystery of mysteries'—the origin of new beings on earth—is still largely as enigmatic as when Darwin set sail on the Beagle."[31]

— Michael Denton (1943–), British biochemist, senior fellow, Center for Science and Culture

"But how do you get from nothing to such an elaborate something if evolution must proceed through a long sequence of intermediate stages, each favored by natural selection? You can't fly with 2 percent of a wing or gain much protection from an iota's similarity with a potentially concealing piece of vegetation. How, in other words, can natural selection explain the incipient stages of structures that can only be used [as we now observe them] in much more elaborated form?"[32]

— Stephen Jay Gould (1941–2002), Harvard University, American paleontologist and evolutionary biologist

"The point, however, is that the doctrine of evolution has swept the world, not on the strength of its scientific merits, but precisely in its capacity as a Gnostic myth. It affirms, in effect, that living beings create themselves, which is, in essence, a metaphysical claim. . . . Thus, in the final analysis, evolutionism is in truth a metaphysical doctrine decked out in scientific garb."[33]

— WOLFGANG SMITH (1930–), AMERICAN MATHEMATICIAN AND PHYSICIST

The preceding statements offer insights rarely seen by the public, and certainly not shared in typical school classrooms, when it comes to accepting Darwin's theory. In 2001, during the same period of time that PBS was airing the *Evolution* miniseries, a diverse group of international scientists signed a declaration that they posted online to let the world know that, for them, the mystery of our origins was not yet solved. As of July 2015 the declaration had been signed by 1,371 esteemed scientists from around the world and the list of signatories continues to grow.

The petition itself is brief and simply reads:

> We are skeptical of claims for the ability of random mutation and natural selection to account for the complexity of life. Careful examination of the evidence for Darwinian theory should be encouraged.[34]

Clearly, the jury is still out on the viability of Darwin's theory of evolution when it comes to solving the mystery of human beginnings. It's obvious from objections such as the ones listed, and more, that criticism of evolution continues with passion and vigorous debate. And while Darwin's ideas are a century and a half old, they're still among the most emotionally charged issues of our time. My sense is that the reason for the controversy is twofold: first, the theory has deep moral, social, and religious implications; second, evolution is usually presented as scientific fact even though

conflicting issues have yet to be resolved.

HONORING CHARLES DARWIN

Now that we have viewed some of the objections to Darwin's theory of evolution, I'd like to take this opportunity to clarify my personal view as a geologist, researcher, and author when it comes to Charles Darwin himself and his ideas of evolution.

I'll begin by stating that I have tremendous respect for Charles Darwin, both as a man and as a scientist, for what he accomplished in his day. He lived in a society that was very different from our 21st-century world. It took tremendous courage for him to offer what he did, in the way that he did it, during his time in history. The Catholic Church played a powerful and dominant role in 19th-century England, and Darwin knew that his theory would pose a direct threat to the religious doctrine of the Church. It was precisely because of this awareness that he waited over twenty years after his voyage on the HMS *Beagle* ended in 1836 to publish his book. In a letter he wrote to botanist Asa Gray in 1860, he stated his concern, saying that he "had no intention to write atheistically."[35]

Darwin lived to see his fears of such criticism justified as Cardinal Henry Edward Manning, England's highest-ranking Catholic official when *Origin of Species* was published, attacked the theory of evolution as a "brutal philosophy," stating that it implied "the ape is our Adam."[36] In spite of such criticism, at the time of his death in 1862, Darwin was considered to be the greatest scientist of his era.

I'd also like to acknowledge that much of the controversy that Darwin's theory has caused both in his time and today is due to 1) a misunderstanding of what he actually said and 2) the desire of universities, college professors, the scientific community at large, and politicians to hold his work sacred and infallible. In other words, institutions and the people who support them have attempted to make Darwin's work into something he himself never intended it to be. They want to use his theory for purposes he never foresaw or intended.

Darwin was a geologist and, by all accounts, a good geologist. He was fair and honest when he wrote about what he observed, as well as about what he believed his observations were telling him. His work was well thought out and meticulously documented, and his methods followed the accepted guidelines of the period. Where I believe Darwin's process was flawed is in regard to what he did after he published *Origin of Species*. Because his theory of evolution seemed to fit what he saw happening for one form of life in one place in the world—specifically, for the finches of the Galapagos Islands—he tried to generalize the theory to apply to all life everywhere, including humankind. This leap is where Darwin's theory of evolution appears to break down.

While we still don't know precisely what did happen when our modern human ancestors appeared 200,000 years ago, the best evidence we've obtained from the fossil record does not support evolution as the explanation for how they came to be as they were. I'm mentioning this point now because the thinking that is perpetuated by the mainstream media and many academic institutions that have a vested interest in keeping the story of evolution alive is that the controversy is

over.

A THEORY IN NEED OF PROOF

Immediately following Charles Darwin's 1859 release of *Origin of Species*, the widespread acceptance of his theory led to a search for the physical evidence to support it: the "missing links" between species that were believed to exist in the fossil record. If scientists could find these clues, the logic goes, then they would be able to reconstruct our ancient family tree of development. Just the way we can document our individual family lineage in reverse, going from our parents to our grandparents, and then to our great-grandparents, and so on, they assumed one day it would be possible to create a family tree of all our collective ancestors.

The current thinking about our human evolutionary tree is shown in Figure 1.1. In this image, modern humans are represented by *Homo sapiens*, the bold dot in the upper left portion of the chart. The lines forming the branches that connect us with the other skulls lower on the tree represent the various paths of development—evolutionary paths—scientists believe have led from early primates to us today.

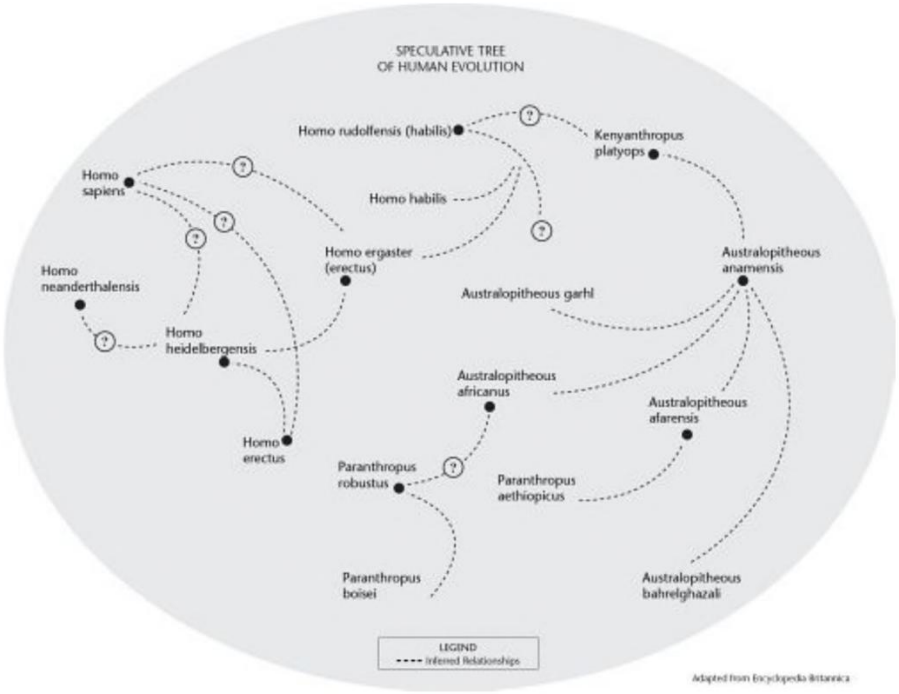

Figure 1.1. An example of the traditional human family tree of evolution. The problem with the thinking represented by this tree is that physical evidence confirming a connection between the fossils has yet to be discovered. This lack of evidence is the reason the lines that form the tree are labeled "inferred" relationships.

A close look at the illustration in Figure 1.1, however, reveals that the links between the fossils are shown as dashed lines rather than solid ones. This means that the lines represent *speculative* or *inferred* connections rather than proven ones. While the links are believed to exist, after 150 years of searching for the evidence to support them, they have yet to be proven.

Key 8: While the connections between ancient primates and modern humans on the evolutionary family

> tree are believed to exist, they have never been proven as fact—they are inferred and speculative connections only, at this point in time.

In other words, the physical evidence that confirms the evolutionary links that influence aspects of our lives ranging from health care to the moral justification of hate crimes, suicide, assisted suicide, and the death penalty as well as the criteria for our self-image and intimate relationships has yet to be discovered!

From the time evolution theory was introduced in 1859 to the date of this writing, to the best of this author's knowledge no clear evidence of a transitional species leading to us—that is, fossils that reflect an evolutionary journey from primitive to more human-like beings—has been discovered! Thomas H. Morgan, the winner of the 1933 Nobel Prize in physiology and medicine, left no doubt of this in the minds of readers of his book *Evolution and Adaptation*. As modern science applies what Morgan says are the "most rigid . . . tests used to distinguish wild species," he states, "Within the period of human history we do not know of a single instance of the transformation of one species into another."[37]

In the face of impassioned scientific debates, and with the "futuristic" technology that's now unlocking life's deepest mysteries, the stark fact of Morgan's observation remains a warning against wholeheartedly embracing the theory of human evolution. Even so, the theory continues to be taught in public classrooms as if it's an undisputed fact!

In *Origin of Species*, Darwin acknowledged the irony in the lack of physical evidence to support his theory. He also noted

that the reason for the lack of physical evidence could possibly be explained in one of two ways: Either the geologists were interpreting the history of the earth incorrectly, or he himself had incorrectly interpreted the observations that became the foundation of his theory.

In Darwin's own words:

> Why does not every collection of fossil remains afford plain evidence of the gradation and mutation of the forms of life? We meet with no such evidence, and this is the most obvious and forcible of the many objections which may be urged against my theory.[38]

It's against the backdrop of these ideas and criticisms that an astounding discovery in the late 20th century gave scientists the opportunity to put some of the strongest-held arguments for evolution to the test. If human evolution has in fact occurred, as Darwin's theory hypothesizes, then the best way to prove the theory would be to compare us to our ancestors at the deepest level of our cells. To do so, scientists would need to sample the DNA of our early ancestors and compare it to the DNA of our bodies today, which is a problem because modern humans have already been on earth for 200,000 years. Because DNA is fragile, it doesn't last that long.

Is it possible that DNA from ancient primate life could still exist today? And if it were to exist, could we test the recovered DNA the way we routinely test our DNA today? Although these questions sound as if they could have come from the plot of *Jurassic Park*, a movie depicting ancient dinosaurs being resurrected through DNA in the present day, the answer to these questions came to light in the form of a one-of-a-kind discovery in 1987. The revelations of the

discovery have left more questions unanswered, created even deeper mysteries, and opened the door to a possibility that has been forbidden territory in traditional science.

chapter two

HUMAN BY DESIGN

The Mystery of Fused DNA

"All of us who study the origin of life find that the more we look into it, the more we feel that it is too complex to have evolved anywhere."

— HAROLD UREY (1893–1981), NOBEL PRIZE–WINNING CHEMIST

On Saturday, February 28, 1953, two men walked into the Eagle pub in Cambridgeshire, England, and announced a discovery that would forever change the world and the way we think of ourselves. At noon that day, Cambridge University scientists James Watson and Francis Crick announced to their colleagues who were having lunch at the pub, "We have discovered the secret of life!"[1] Watson and Crick had just made their breakthrough discovery of the double helix pattern of the DNA molecule—nature's code for life.

DNA is held within each cell of our body in threadlike

structures that are called chromosomes. As humans, we have 23 pairs of chromosomes in our cells. Each chromosome, in turn, is made of smaller, more precise regions of DNA called genes. It's the codes contained within the genes and chromosomes that determine everything about the function of our bodies, including the regulation of hormones and blood chemistry, how fast and to what size our bones grow, the size of our brains, the kind of eyes we have, and how long we live —even automatic functions such as breathing, digestion, metabolism, and body temperature. With a discovery of this magnitude, it would seem that the greatest mysteries of our existence would be solved. Many have been. However, due to the deeper insights that DNA discoveries have made possible, scientists now face a quandary when it comes to interpreting where the new information about our genetic code fits into the accepted human story.

RETRIEVING DNA FROM A NEANDERTHAL BABY

In 1987, a paradigm-shattering discovery was made in the Caucasus region of Russia, near the border between Europe and Asia. Buried deep in the earth, in a place called Mezmaiskaya Cave, scientists discovered the remains of a Neanderthal infant—a baby girl that lived about 30,000 years ago! For reference, the last ice age ended about 20,000 years ago, meaning that this baby was alive during the ice age. Her remains were in an extremely rare state of preservation, and scientists were able to determine her age as somewhere between that of an unborn seven-month fetus and a two-month-old infant.

William Goodwin, Ph.D., from the University of Glasgow commented on the exceptional discovery. "It is something of a mystery how this child's remains were so perfectly preserved. . . . Normally you only get material with this degree of preservation in material from permafrost areas."[2]

I'm sharing many details here because this landmark discovery was the turning point when it comes to answering the question of where humans fit on the evolutionary family tree.

Using forensic techniques, like the futuristic technology that's depicted in the TV series *CSI*, scientists were able to extract mitochondrial DNA from one of the baby's ribs for analysis. Mitochondrial DNA (mtDNA) is a special form of DNA that's located within the energy centers (mitochondria) inside each of our cells, rather than in the chromosomes, where most of our DNA is found. The reason mtDNA is key when it comes to the question of human evolution is that we inherit it only from our mothers. It's passed from the egg of a mother to both her sons and her daughters, and this typically happens without any of the mutations that can lead to new features in children. This means that the mitochondrial DNA lines in our bodies today are the direct descendants, and exact matches, of the mitochondrial DNA of the woman who began our particular lineage long ago. Because of this unique quality, mtDNA is used to study how people and populations in one place relate to those in other places. It's the uniqueness of this form of DNA that set the stage for the bombshell revealed by the Neanderthal infant.

NOW WE KNOW WHO WE'RE NOT

Using the most advanced techniques, with results that are accepted in the highest courts of law, Russian and Swedish scientists tested the Neanderthal infant's DNA to see how similar hers was to that of modern-day humans. In other words, the scientists wanted to know if the Neanderthal girl was actually one of our ancestors, as the evolutionary family tree leads us to believe. The results of the first studies were published in obscure scientific journals, which concluded, according to the Smithsonian Institution, that "the Neanderthal mtDNA sequences were substantially different from human mtDNA."[3] Although this single statement sounds relatively benign, it's the equivalent of an earthquake with the epicenter right at the root of the human evolutionary tree. Few mainstream news sources shared the discovery, however, and those that did offered the technical details without simplifying them for lay readers or interpreting their significance.

All of that changed, however, in the year 2000. It was then that researchers at the University of Glasgow Human Identification Centre published the results of their own investigation comparing Neanderthal DNA to that of modern humans. The results of their study were shared in a way that made sense even to the most nonscientific reader. And the meaning of what they found could not be dismissed. The conclusion of their report was shared in the peer-reviewed journal *Nature* and directly stated that modern humans "were not, in fact, descended from Neanderthals."[4]

Now there could be no turning back. While scientists had

originally believed that the mtDNA of the Neanderthal infant would solve the mystery of our ancestry, it actually did just the opposite.

Key 9: The discovery of an extraordinarily well-preserved female Neanderthal infant—dating back 30,000 years—and the comparison of her mitochondrial DNA to ours, tells us definitively that the earliest modern humans *were not* the descendants of ancient Neanderthals.

NOT YOUR AVERAGE CAVEMAN

If we're not descendants of Neanderthals, then who are our ancestors? Where do we fit on the tree of evolution—do we even belong in Darwin's evolutionary family? The comparison of DNA from Neanderthals and other primate fossils has shed new light on this question. In doing so, however, it's also forced scientists to ponder a new possibility when it comes to unraveling the mystery of our origins.

When I was in school during the 1960s and 1970s, learning about Neanderthals and other prehuman beings such as the *Australopithecus* (the famous Lucy) and the *Homo habilis* (the handy man), we were taught that there was another member of the evolutionary family tree who was a close ancestor as well. In those days, the name used for these distant relatives was the Cro-Magnon. Today, however, that term is no longer used. Paleoanthropologists have replaced it with another that makes more sense, and the reason is self-explanatory. The

new name used to identify the beings once known as Cro-Magnons is *anatomically modern humans*, or AMHs.

Scientists generally agree that AMHs first appear in the fossil record approximately 200,000 years ago and mark the beginning of the subspecies *Homo sapiens sapiens*—the term used to describe the people living on earth today.[5] While fossils of bones themselves are more resistant to the elements and can last for millions of years, the DNA found inside bones —in the bone marrow—is much more fragile and typically exists only in relatively recent remains. So although AMHs appeared on earth 200,000 years ago, the oldest DNA discovered from them so far is from a man who lived in Siberia about 45,000 years ago.[6]

In 2003, further advances in genetic technology allowed for the comparison of the earliest anatomically modern human bodies with four newly discovered Neanderthal bodies. A team of European scientists compared the DNA from two AMHs, one that was 23,000 years old and another that was 25,000 years old, with DNA from the remains of the Neanderthals, who were variously dated as living between 29,000 and 42,000 years ago. An article on the findings published in *National Geographic News*, quotes one of the co-authors as saying, "Our results add to the evidence collected previously in different fields, making the hypothesis of a 'Neanderthal heritage' very unlikely."[7] Once again the Neanderthals, often portrayed as primitive cavemen in movies and cartoons, were eliminated as possible ancestors of early modern humans.

Now that we know who our ancestors were not, the focus of paleoanthropology has shifted to discovering who they were.

The DNA studies have narrowed the broad field down to one particular candidate. And it's not the candidate supporters of Darwin's theory expected.

THEY ARE US

Scientists now believe that the AMHs are us, and we are they. Any differences between contemporary bodies and those of the AMHs of the past are so slight that they don't justify a separate grouping. In other words, although ancient humans didn't necessarily behave like we do, they *looked* like us, functioned like us, and appear to have had all of the "wiring" in their nervous systems that we have today.

Stated another way, we still look and function as they did 2,000 centuries ago, despite our incredible technological achievements. A 2008 study of AMH remains (still called Cro-Magnon at the time), performed by collaborating geneticists from the universities of Ferrara and Florence in Italy, tells us that these similarities are more than superficial. Researchers report, "A Cro-Magnoid individual who lived in Southern Italy 28,000 years ago was a modern European, genetically as well as anatomically."[8]

It's the fact that members of our species, *Homo sapiens*, haven't changed since our earliest ancestors first appear in the fossil record that poses a problem for the traditional story of evolution, which is based upon slow changes over long periods of time. Discoveries that could not have been made in Darwin's time have shed new light on this lingering mystery.

THE DNA THAT MAKES US DIFFERENT

The set of all human DNA, the *human genome*, was the first DNA sequence of any vertebrate to be entirely mapped. The international effort that made this mapping possible—the Human Genome Project (HGP)—was the result of the largest cooperative biology project in the history of the world.[9] In June 2000, U.K. prime minister Tony Blair and U.S. president Bill Clinton jointly revealed that the first draft of the human code of life had been successfully completed. In doing so, they announced to the world that this unprecedented act of cooperation had opened a new era of lifesaving genetic medicine, and the global industry and economic boom that would follow.

After the success of the HGP, the same techniques used to map human DNA were then applied to other living things. For the first time, scientists could go beyond educated guesses about our genetic relationships and actually compare our life's code to that of any other form of life. The results were nothing short of mind-boggling. While scientists have long known that chimpanzees, for example, are our nearest relatives, for the first time DNA maps allowed them to see just how close that relationship really is.

Genetic mapping revealed that there is only a 1.5 percent difference that separates us from chimpanzees, or conversely stated, we share over 98 percent of the same DNA.[10] When the mapping methods were applied beyond primates, the results were equally astounding. For instance, we share 60 percent of our DNA with a fruit fly, 80 percent with a cow, and 90 percent with a common house cat. We obviously don't look or

act like a fly, a cow, or a cat. The big question that comes from such revelations is this: If we have so much in common with other creatures genetically, then why are we so different from them?

The answer to this question goes back to an unexpected discovery made during the HGP: that a single gene can be activated in different ways, and to different degrees, to do different things. What this tells us is that it's not so much about *what* genes we have in common with chimps, cows, flies, and cats. It's more about *how* those genes are activated—or expressed. A gene called *FOXP2*, now understood to be directly linked to our ability to form complex speech, is a perfect example of what I mean here.

FOXP2 is shorthand for Forkhead Box Protein P2, a protein that's involved in the human ability for language. Located on chromosome 7 (precisely at location 7q31), the FOXP2 protein is coded from a gene that has the same name, FOXP2, and is present in both humans and chimpanzees.[11,12] It's obvious, however, that chimpanzees can't sing the Led Zeppelin song "Stairway to Heaven" the way a person can! This fact tells us that there is something more than the gene itself that's involved here. There's something in the way the gene expresses itself that gives us the ability to consistently create the sounds of language. In 2009, a study published in the journal *Nature* gives us a clue as to what that "something" is.

Scientists knew from earlier research that humans and chimpanzees both possess the FOXP2 gene. They'd also determined that the human version of the gene had changed (mutated) at some point in the past, and that the change happened quickly—not slowly and gradually, as the theory of

evolution would suggest. Now researchers at the David Geffen School of Medicine at UCLA had determined that this change happened precisely at a critical moment in the unfolding of the human story. According to these scientists, the mutation happened "rapidly around the same time that language emerged in humans."[13] This was a pivotal discovery because for the first time a specific set of mutations in FOXP2 was scientifically linked to our capacity to create complex language.

Additional studies took this research even further and determined when this particular change had happened. According to Wolfgang Enard of the Max Planck Institute for Evolutionary Anthropology, the mutations in FOXP2 that make our complex language possible "happened in the same time frame when modern humans evolved."[14] A *BBC News World Edition* report clarifies this relationship, stating that our capacity for language happened when "changes to two single letters of the DNA code [the representations for the building blocks of amino acids] arose in the last 200,000 years of human evolution."[15]

The speed and precision of the mutations in FOXP2, occurring in just the right two places in the DNA code, are further examples of the kind of change that does not lend itself to the theory of evolution—at least not as we understand the theory today. Why did the changes happen in the way they did? What could have caused just the right shift of DNA letters, at just the right place, within just the right chromosome, to give us the extraordinary ability to share our feelings over a candlelight dinner for two, chant wildly when our team wins the Super Bowl or the World Cup, and whisper

into a lover's ear? The best science of the modern world has now given us the answer. The question is, are we willing to accept what the DNA reveals?

FOUND: OUR "MISSING" DNA!

Because humans are classified as the most complex and advanced member of the primate family, it was reasonable for scientists to expect that we would have more chromosomes than our less complex relatives. This is where an unexpected twist in our DNA story begins. Our nearest primate relatives, the chimpanzees, have more chromosomes than we do, with a total of 48 in their overall genome. Ironically, humans have only 46. In other words, it looks like we're *missing* two chromosomes when we're compared to chimps. It's only been recently, using advanced methods of DNA sequencing, that the mystery of "where they went" appears to have been solved. In doing so, however, we once again find ourselves at the threshold of a deeper mystery that holds startling implications!

A closer look at our genetic map shows that our "missing" DNA isn't really missing at all. It's been with us all along; only it's been modified and arranged in a way that wasn't obvious in the past. New research reveals that the second largest chromosome in the human body, forming 8 percent of the total DNA in cells, *human chromosome 2* (HC2), actually contains the smaller "missing" chromosomes found in the chimp genome.[16] In other words, at some point in the past, for reasons that remain controversial, two separate chimp chromosomes got combined into a single larger chromosome

that is our chromosome 2.

It's the way these smaller chromosomes combined that may solve the mystery of mutations such as those in FOXP2, and ultimately, the mystery of human origins. While scientists acknowledge that the mutations definitely occurred in FOXP2 and that they happened within the time frame that correlates with the rise of anatomically modern humans, they can't really tell us what caused the change. But they can tell with chromosome 2. And it's this difference that sets chromosome 2 apart.

New technology has revealed precisely what happened to create HC2. I'll share the discovery in two ways with you: first in the scientists' own technical language from the *Proceedings of the National Academy of Sciences* to reveal the discovery itself, and then with a simpler description in lay language to illustrate why this discovery is important to our discussion.

- **The technical explanation.** "We conclude that the locus cloned in cosmids c8.1 and c29B is the relic of an *ancient telomere-telomere fusion* and marks the point at which two ancestral ape chromosomes fused to give rise to human chromosome 2."[17]
- **The simplified explanation.** It appears that long ago two separate chromosomes from chimpanzees (chimp chromosomes 2A and 2B) *merged* or fused into the single, larger human chromosome 2—which is one of the key chromosomes that give us our humanness.

Many of the characteristics that make us uniquely human arise from the DNA fusion that resulted in human

chromosome 2. HC2-linked traits include qualities such as our intellect, the growth and development of our brains in general, and specifically the largest part of our brain, the cortex, which is associated with the way we think and act and our capacity for emotion.[18] HC2 contains over 1,400 genes that continue to be mapped and explored today. While a full list, in technical nomenclature, is available through the reference I'm citing in the endnotes, in the following chart I'll share a few simplified examples of these genes to give you a sense of the crucial roles they play in our humanness.[19]

Gene	Influence
Gene TBR1	Key in brain development, particularly the development of the cortex (the largest part of the human brain, which is associated with the way we think and act), our capacity for emotion, empathy, and compassion, and neuron functions (the so-called hardwiring that carries signals within the brain, and throughout the body, to process information)
Gene SATB2	Key in the development of the midbrain and forebrain
Gene BMPR2	Key in osteogenesis (bone tissue formation) as well as cell growth throughout the body
Gene MSH2	Known as a tumor suppressor or "caretaker" gene
Gene SSB	Key in the fetal development of organs that

	include the heart, brain, eye, kidney, liver, lung, skeleton, spleen, among others

From this small sampling, it's clear that human chromosome 2 plays a significant role in contributing to who, and what, we are. This is especially apparent for the genes TBR1 and SATB2, located on HC2, and the role they play in the development and function of our advanced brain and our extraordinary capacity for emotion. In light of the significance of HC2, the question of how it came into existence becomes more important than ever.

Unlike the previous example of the FOXP2 gene, where changes simply show up in a genome comparison—meaning at one point in time they don't exist in the genetic record of fossils, and at another point in time they do—human chromosome 2 has preserved a record of how it came to exist. It's what this forensic evidence may truly reveal to us that has opened the door to so much speculation. This is where the story of our past takes an unexpected turn, with deeper implications that make our origins begin to sound like the theme of a really good science-fiction novel. You see, the *Proceedings of the National Academy of Sciences* study states that although this kind of fusion is known to happen occasionally, it's rare.

What accompanied the fusion itself opens the door to our new human story.

In the language of the researchers describing this discovery, the fusion was either "accompanied or followed by inactivation or elimination of one of the ancestral centromeres, as well as by events which stabilize the fusion

point."[20] While this language is admittedly complex, the message is clear and simple. The study is telling us that during the fusion, or immediately afterward, the overlapping functions from what were originally two separate chromosomes *were either adjusted, turned off, or removed altogether* to make the new single chromosome more efficient.

This fact strongly implies intentionality. And as we've discovered previously, that intentionality led to humanity's possession of many of the extraordinary functions that are found in no other form of life on earth.

Key 10: Human chromosome 2, the second-largest chromosome in the human body, is the result of an ancient DNA fusion that cannot be explained by the theory of evolution as we understand it today.

Two Questions: Why and How?

So now that we know where the missing DNA is located, and how two ancient primate chromosomes were fused into the new larger human chromosome 2, two questions naturally arise:

1. *Why* did this ancient fusion of DNA happen?
2. *How* were the overlapping (redundant) parts of the fusion "switched off" or removed altogether?

The answer to question 1 is that scientists simply don't know. As of this writing, scientists cannot say with absolute

certainty why primate DNA got merged in the way that it did, yielding AMHs. While there is certainly no shortage of theories and speculation attempting to explain the mystery, 25 years after this finding was made, the truth is that, at present, there still is no scientific consensus for what could have triggered this miraculous-sounding event.

One thing appears to be certain, however: The DNA that makes us who we are, and what we are, is *not* the result of the process of evolution that Charles Darwin described. My sense is that if we can answer the second question—how the fusion occurred—what we discover will ultimately help us answer the question of why, and much more. When we can answer definitively how the ancient genetic fusion happened and how specific pieces of the fusion were modified so precisely and so quickly 200,000 years ago, the solution to these mysteries will lead us directly to an explanation for why such an extraordinary event took place.

As you may imagine, the discovery of an ancient and complex DNA fusion is interpreted by scientists in different ways. And the differing interpretations have triggered a landslide of controversy. Even after the publication of the article in the *Proceedings of the National Academy of Sciences* described previously, staunch supporters of the evolutionary theory for humans have argued that there are other explanations for the DNA fusion. One theory, for example, proposes that humans and apes, such as chimpanzees and gorillas, all share a common ancestor and that a "split" separated us from them long ago.

If this is true, the chromosome 2 fusion happened to us, and only us, and it happened *after* we had already split from

the other primates. They kept their 48 chromosomes and we experienced the fusion that gives us our 46.

This idea makes little sense to me, as it suggests that the DNA that gives us our uniqueness didn't appear until after the uniqueness that caused the split had already happened!

I'm not alone in my thinking, and, to date, evolutionary explanations have not received popular support. I'm sharing an example with you here to illustrate how a radical discovery that attempts to solve one mystery, such as the DNA fusion in chromosome 2, can create even more mysteries as its meaning is digested.

IRREDUCIBLE COMPLEXITY

There is an additional consideration to be made when it comes to the way we think of evolution and the role it may have played in our lives. And while you probably won't see this idea described in classrooms and textbooks (yet), I think it's important to share it here for completeness. The idea is *irreducible complexity.* What this means is much simpler than its name sounds.

I mentioned previously that we have access to knowledge in our era about things that Darwin couldn't have possibly known. It's this fact that makes irreducible complexity worth exploring today. For example, Darwin couldn't have known that even the simplest bacteria, the single-celled *E. coli*, needs 2,000 different proteins to exist; and he couldn't have known that each of those 2,000 proteins has an average of 300 amino acids that make it what it is. The key here is that neither Darwin nor any scientist of the late 1800s or early 1900s could

have known just how complex living beings really are. Until recently, nobody could.

Irreducible complexity essentially means that if any portion of a system stops working, the entire system fails. A common mousetrap is often used to illustrate this point. When all of the parts of a mousetrap are in place, it does what it was made to do—what it was *designed* to do: It trips a lever that traps the mouse that has taken the cheese or peanut butter bait, and ends the life of the mouse.

The trap is a system of parts, with each part performing a specific task to accomplish the ultimate goal. For example, there's the lever that holds the bait and there's the powerful spring that comes down with such lethal force when the bait is disturbed that the mouse doesn't even know what hit it. While the trap sounds like a simple gadget, the key is this: *If even one part of the device is missing, the trap simply won't work.* Without the spring, the lever will never snap. Without the lever, the spring will have nothing to trigger. Because all the pieces of the trap are needed for the system to work, it's fair to say that we can't streamline the mousetrap in any way. We can't reduce it to a simpler system and still have the system be functional. It is irreducibly complex.

If we apply this idea to the human body, we see a similar result.

WE ARE LIVING EXAMPLES OF IRREDUCIBLE COMPLEXITY

We all know that when we scrape a knee, the site of the injury will generally bleed briefly and then the bleeding stops. The

reason it stops is that blood clots at the site of the scrape. We're so accustomed to seeing this process that it's easy to take the complexity of our blood clotting for granted. We just assume that it's going to happen. And the fact that it does is a perfect example of irreducible complexity. When we scratch, cut, or break our skin, 20 separate proteins must be already in place and ready to act for our blood to clot and the bleeding to stop.

This fact is key to our discussion of irreducible complexity for one important reason: *If even one of the 20 proteins needed for clotting is missing, the bleeding will continue.* Whether we wait 10 minutes or 10 hours, the result will be the same. Our blood can only coagulate when all the proteins that make clotting possible are in place.

Our blood's ability to clot is an example of a life function that could not have developed through evolution. To do so, 20 proteins would have already needed to be formed and in the same place before the blood that gives our bodies life could form. If these components had not already been in place, our ancestors would have bled to death with the first minor injuries they sustained—meaning we might not be here, because they might have died without producing offspring. And this is only one example.

Here's another. The little waving arms (cilia) that allow cells, including sperm cells, to travel in fluid have more than 40 moving parts that must all be present for the cilia to wave. If any part is missing, the cells can't move. If ancient sperm cells from a male of our species had not been immediately empowered to "swim" toward the egg of a female, reproduction could not have occurred.

And there's more.

The human cell has been called the single most complex piece of machinery ever known to exist. Until the mid-20th century or so, cells were essentially thought of as tiny bags of salt water holding dissolved elements. We now know that nothing could be further from the truth. In fact, if we could enlarge a single cell to the size of a city, we would discover that the cell is more complex than just the infrastructure that keeps it going. A sample of a cell's important structures includes:

- Ribosomes that manufacture proteins.
- Endoplasmic reticulum that makes and transports important chemicals used by the cell.
- A nucleus that carries instructions for the cell on how to function.
- Microtubules that allow the cell to move and change shape.
- Cilia (little waving arms) that allow some cells to move in fluid.
- Mitochondria that generate energy for the cell.
- A membrane that communicates with the environment and determines what gets into and leaves the cell.

This is just a sampling of the myriad processes that are happening at any given moment in each of the approximately 50 trillion cells of the human body. As we discover what each process does, it becomes obvious that all this cellular machinery had to be already created, and in place, for our

earliest cells to do what they do. From clotting blood to swimming cilia, the body holds many examples of irreducible complexity.

To even the most skeptical scientist, it's obvious that the DNA of life is based upon structure, order, and the sharing of information that tells our cells what to do and when to do it. In nature, this kind of order is often seen as a sign of intelligence.

> **Key 11:** The 20 proteins that make the clotting of blood possible and the 40-plus components of the cilia (wiggly tails) that allow cells to move through a fluid are just two examples of functions that could not develop gradually over a long period of time as evolution suggests. In both examples, if even one protein or component part is missing, the function of the cells is lost.

In candid interviews late in his life, Albert Einstein shared his belief that an underlying order of information exists in the universe, as well as his sense of where that order comes from. During one of those conversations, he confided, "I see a pattern but my imagination cannot picture the maker of the pattern. We all dance to a mysterious tune, intoned in the distance by an invisible piper."[21] In our search for human origins, the very presence of the order and intentionality we see in our DNA is a sign that Einstein's invisible piper exists.

WE'RE OVER-ENDOWED!

There is an additional theme of evolution theory that I have intentionally waited until now to mention. It's a corollary to Darwin's theory, first stated by a colleague and fellow supporter of Darwin, British naturalist Alfred Russel Wallace. Through his work, Wallace defined the evolutionary principle that paves the way for the rest of this book. Building upon Darwin's original work, Wallace made an extraordinary observation when it comes to the development of new features in a species. I'll share Wallace's corollary, stated in his own words, and then apply his statement to what we now know about our own development.

In the final chapter of his book *Contributions to the Theory of Natural Selection*, published in 1870, Wallace leaves no doubt with his readers about what he's saying: "Natural Selection would only have endowed savage man with a brain a little superior to that of an ape, whereas he actually possesses one very little inferior to that of a philosopher."[22] In this somewhat complex passage, Wallace is stating that nature only gives us what we need, when we need it, and does so through evolution, which Darwin defined as a slow and gradual process. In other words, the theory says that we have abilities such as standing upright, advanced peripheral vision, and the ability to share our emotions through smiles, frowns, and other facial expressions because we needed them at some point in the past.

Herein lies the problem. We're all over-endowed! And it appears that we have been since the dawn of our existence.

Key 12: Humans appeared on earth with the same advanced brains and nervous systems we have today and with the ability to self-regulate vital functions already developed, contradicting the corollary to evolution theory that nature doesn't "over-endow" with such features until they are needed.

THE NEW HUMAN STORY

Following 150 years of the best human minds applying themselves under the auspices of the world's most respected universities, being funded with tremendous sums of money, and using the most sophisticated technology available to solve the mystery of our origins, if we were on the right track, it would seem that we'd be farther along than we are today. In light of the failure of Darwin's theory to explain our existence, and in consideration of the new evidence that I've presented, it's reasonable to ask the question that's become the big pink elephant in the room: What if modern science is on the wrong track?

What if we're trying to prove the wrong theory and writing the wrong human story? The answer to this question is the reason I've written this book. If we're on the wrong track, it may help to explain why so many of the solutions applied to the world's problems aren't working. This would mean that our thinking and the "solutions" our approaches have produced are based on something that's not true!

Why not allow the evidence to *lead* us to the story of our past, rather than trying to *force* the evidence into a template that was formed over a century and a half ago? If we're serious about solving the deepest mystery of our existence, it would make sense for us to open our minds and allow for another interpretation of the data we've collected during a century and a half of study.

What if there is no evolutionary path leading to modern humans? What if the pieces of the genetic puzzle that makes us who we are were suddenly locked into place all at once rather than accumulating gradually over time? What would such a story look like? The data from studies of human chromosome 2 and other DNA studies, the lack of fossil evidence documenting the transition from one hominid species to another, and the lack of common DNA between humans and less advanced primates all suggest that we may not belong on the same tree with the early hominids commonly shown in the textbooks. In fact, they suggest that we may not belong to a tree at all! The evidence suggests that our history may be represented best as a stand-alone shrub—an evolutionary bush—that begins and ends with us.

In other words, we may find that we're a species unique unto ourselves.

Key 13: A growing body of physical and DNA evidence suggests that our species may have appeared 200,000 years ago with no evolutionary path leading to our appearance.

This is not to say that evolution doesn't exist or hasn't occurred anywhere. It does and it has. As a geologist, I've seen firsthand the fossil record of the evolution that's occurred in a number of other species. It's just that when we attempt to apply what we know of the evolution of plants and animals to humans, the facts don't support the theory. They fail to explain what the evidence reveals.

If we were to place the essence of the new discoveries about us into a concise list, the statements that follow would offer a high-level summary. Additionally they would give us a good idea of where the new theories, and our new story, may be heading.

HERE'S WHAT WE'RE NOT

- The theory of living cells evolving (mutating randomly) over long periods of time *does not*, and *cannot*, explain our origins or the complexities of our bodies.
- The evolutionary family tree for humans *is not* supported with physical evidence.
- DNA studies prove that we *did not* descend from Neanderthals, as previously believed.
- We *have not* changed since the first of our kind, the anatomically modern humans, appeared in the fossil record of the earth approximately 200,000 years ago.
- The precise events that produced the DNA that gives us our uniqueness *are not* commonplace in nature.

So now that we know what we're *not*, what does the best

science of our time tell us about who we *are*? What does the new human story look like?

HERE'S WHAT WE ARE

- AMHs appeared on earth approximately 200,000 years ago with the DNA and the advanced brain and complex nervous system that set us apart from other forms of life already formed and functioning.
- We appear to be a species unique unto ourselves, with our own simple family tree, rather than being a variation of preexisting forms of life traditionally shown on an increasingly crowded family tree.
- The DNA that makes us unique is the result of a rare arrangement of chromosomes, which are fused and optimized in a way that cannot be identified as random.

Key 14: An honest scientist, who is not bound by the constraints of academia, politics, or religion can no longer discount the new evidence about our human origins and still remain credible.

In the course of my life, I've discovered that when I find something that makes no sense to me, it's generally because I don't have all the information. I believe that the conventional scientific theory of human origins—the story we've been asked to accept—falls into this category. The evidence that I've shared in this chapter clearly doesn't support Darwin's

story of evolution. While the science is good and the methods scientists use are sound ones, it's our responsibility to recognize the limits of what science can reveal. As I mentioned previously, while scientific evidence can definitely tell us *what* has happened in the past, it cannot necessarily tell us *why* something has happened or if conscious intention led to the event.

For example, when we see a fire brightly burning on a warm summer night in the middle of a grassy field, scientific knowledge tells us that a spark of some kind has ignited that fire. It's telling us that a fire can only come from a) a source of heat great enough to start the fire (the *kindling temperature*), or b) another fire, such as the accidental spark of a lawnmower blade hitting a rock, the intentional spark of a match or a cigarette lighter, or the natural spark of lightning striking the ground. My point here is that without first knowing the circumstances that were in place when the fire began, science can't tell us the precise reason that the spark occurred, or if it was an intentional act. If a fire occurred hundreds or thousands of years in the past, much of the evidence related to its circumstances would be lost in the fog of time. All we would know from the charred remains of a log or a scorched rock is that there had been a fire.

The fusion of DNA in human chromosome 2 is like that fire in the field. Science can tell us that the fusion making it possible occurred and how that fusion occurred. But because scientists can't determine all of the circumstances surrounding the fusion—as these have been lost over the ages—we're left to rely upon facts, logic, and deductive reasoning to make sense of what we see. The same point that I'm

making here for our chromosome 2 can be made for our gene FOXP2.

WE'RE HUMAN BY DESIGN

I want to be absolutely clear that what I say next is not the conclusion of peer-reviewed science, although I've spoken with mainstream scientists who have told me that they suspect it is true, yet are reluctant to speak publicly about their suspicions for fear of losing their reputation, their credibility, and even their jobs. When I honestly consider the evidence that I've shared in these chapters, it simply makes sense to look beyond evolution and an unbelievably good run of biological "luck" to explain the fact of our existence.

The evidence overwhelmingly suggests that:

1. **We are the result of an intentional act of creation.**
    - The mutations in FOXP2 and human chromosome 2 are precise
    - The mutations in FOXP2 and human chromosome 2 appear to have happened quickly rather than through a long, slow evolutionary process
    - The optimization of human chromosome 2 that occurred *after the fusion* appears to be intentional
    - After 150 years of searching, the fact that no physical evidence has been discovered to link us to other forms of life on the tree of primate evolution suggests that we may be a species unto ourselves, with no evolutionary history

2. **We are the products of an intelligent form of life.**
    - The timing, precision, and accuracy of our genetic mutations, and the technology required to yield such mutations, implies the forethought and intention of an advanced intelligence
    - The intelligence that carried out the genetic modifications giving us our humanness had the advanced technology to do 200,000 years ago what we are only learning to do today (for example, DNA fusion and gene splicing)

To honestly acknowledge these possibilities opens us to a paradigm that shifts the way we feel about ourselves and view our place in the universe. With this shift, we free ourselves from a paradigm of lonely insignificance and move into one of possessing a rare heritage that we are only beginning to explore. And that's where this book begins. We're here with the bodies and the nervous systems that afford us the abilities of compassion, empathy, intuition, self-healing, and much more. The fact of their presence within us suggests that we're intended to utilize—and master—the sensitivities that we arrived with.

The new human story begins with our beginnings. It begins with the fact that from the time of our origin we've been neurologically wired for extraordinary abilities. This design affords us extraordinary ways of living and extraordinary lives.

The question that immediately comes to mind when we consider that we've had such advanced characteristics from our beginning is this: How do we fully awaken these

capabilities in our lives today? In the chapters that follow, I invite you to share a journey of discovery in which we do our best to answer this question and explore what it means to be human by design.

chapter three

THE BRAIN IN THE HEART

Heart Cells That Think, Feel, and Remember

"If the 20th century has been, so to speak, the Century of the Brain, then the 21st century should be the Century of the Heart."

— GARY E. R. SCHWARTZ, PH.D., AND LINDA G. S. RUSSEK, PH.D.

The first fossils of anatomically modern humans were discovered under a rock ledge in southwestern France in 1868. The name given the formation where the discovery was made is *abri de Cro-Magnon* (meaning, in the local dialect, "shelter of the cave-dwelling Magnon family"), which was soon shortened to Cro-Magnon.[1] This location became the namesake for Cro-Magnon humans, now known as AMHs. Regardless of the name we use to describe the early people who lived in this region of France, these ancient humans were different from any other form of life that existed at the time or has existed since.

Just as forensic scientists today are able to use computers to reconstruct the muscle mass, flesh, and facial features of a modern human body that's been reduced to a skeleton, scientists have been able to use the same technology on AMH skeletons as well, and the features they've been able to reconstruct look like ours—because they are us! The archaeological and DNA evidence tells us that we haven't changed for 200,000 years.

Anatomically modern humans had features that set them apart from other ancient beings, such as the Neanderthals, whom we now know lived at the same time. AMH males, averaging approximately five feet nine inches,[2] were tall in comparison to Neanderthal males, whose height ranged from five feet four to five feet five.[3] AMH bone structure was thinner and more delicate overall, their skulls were more rounded in the back, and their faces were smaller, with more pointed chins.

In addition to these visible differences, AMHs had advanced biology—differences that couldn't be seen with the naked eye that gave them an edge over all other forms of life on earth. Many scientists attribute their survival through the last ice age into modern times to these advanced features, which include a brain 50 percent larger than that of their nearest primate relative; a complex language; an anatomy that enables them to stand, walk, and run upright; and opposing thumbs and fingers.

For clarity, I want to reemphasize that the makeup of the AMHs of 200,000 years ago has been determined to be essentially the same as that of humans today, both in genetics as well as physiology. Because of this, the assumption is that

the advanced features we have today were also part of our human ancestors. Their inherent features would have included the ability we have today to tap the network of neurons, vital organs, and glands throughout the body to trigger their extraordinary potentials in a conscious way—and do so at will—to experience benefits such as deep intuition and self-healing.

I'm contrasting the presence of this network in AMHs to other forms of life that have neural networks as well, yet are less developed and must rely upon something in their external environment to trigger the benefits of their biology. A small zebra fish, commonly used in laboratory experiments, is a perfect example of what I mean here. It's only when the fish is stimulated by something outside of its body, such as a visual cue that makes the fish think it's drifting backward in a current, that 80 percent of the neurons in its brain fire all at once. This is the equivalent of signaling *All systems go!* in the fish's body. It's this simultaneous triggering of neurons that gives the fish immediate access to the benefits of such a coherent experience. In this instance, the zebra fish is able to tap the combined neural power to swim quickly and correct its course.[4]

Ancient humans had the ability to access their neural power without the need for an external signal as well. They could trigger their potent network of specialized cells and organs on demand. And we continue to have that ability today.

This is where the new human story that our biology is revealing to us departs from Darwin's original ideas about evolution. Having conscious access to our advanced neural

network gives us the godlike powers of intuition, self-healing, super-consciousness, and much more. These benefits have been utilized by yogis and shamans throughout the ages and described in their sacred mystical texts. Perhaps it's not surprising that the key to accessing such advanced features of our experience begins with our mastery of the single organ that has been the focus of our ancestors' teachings for millennia: the human heart.

A recent discovery within the heart is shaking the foundation of what we've been led to believe about the heart's role when it comes to us and our bodies. Interestingly, while the discovery is overturning traditional thinking when it comes to which organ we consider to be the master organ of the body, it actually parallels teachings found in our most ancient and cherished traditions.

THE UNCHARTED HEART

When average people are asked to identify the organ that controls the key functions of the body, more often than not the answer is the same. They'll say it's the brain. And it's no surprise that they do. From Leonard da Vinci's day, 500 years ago, until as recently as the late 1990s, people throughout the Western-educated world have believed that the brain is the conductor leading a symphony of functions in the body that keep us alive and well.

It's what we've been taught. It's what we've been led to believe. It's what teachers have stated with authority. It's the premise that doctors and health-care workers have based life-or-death decisions upon. And it's what most people will say

when asked to identify the roles of the most important organs of the body. The belief that the brain is the master organ of the human body has been embraced and endorsed by the some of the most innovative scientists and thinkers at the most highly esteemed institutions and universities in modern history, and it persists in mainstream thinking today.

The home page on the website for the Mayfield Clinic, affiliated with the University of Cincinnati's neurosurgery department, is a beautiful example of this way of thinking when it comes to the brain. It reads:

> The brain is an amazing three-pound organ that controls all functions of the body, interprets information from the outside world, and embodies the essence of the mind and soul. Intelligence, creativity, emotion, and memory are a few of the many things governed by the brain.[5]

The belief that the brain is the control center for the human body, our emotions, and our memories has been so universally accepted that it's been taken for granted almost without question for a long time—that is, until now. As the discoveries described in the following chapters will reveal, this perspective is only one piece of a much bigger story.

Today, what we thought we knew about the brain is changing. It has to. The reason is simple: The discoveries described in this chapter, and the decades of research that have followed, tell us that the brain is only part of the story. While it's certainly true that the brain's functions include things like perception, motor skills, information processing, providing chemical triggers for every urge we feel automatically—including fatigue, hunger, and sexual desire—and also maintaining the strength of our immune system, it's